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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NGO, HUYEN LE

ART UNIT PAPER NUMBER

2871

DATE MAILED: 02/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/890,553

Applicant(s)

SEIBERLE ET AL.

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2002 and 12 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

Newly submitted claims 20 and 21 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the microelement can be formed as micro-lens array or micro-prism array; however, this microelement is formed as hologram element or an array of light switches is entirely different subjects, that would be related to distinct inventions since the functions and properties of as hologram element or an array of light switches are different from the microelement 4 as shown in Fig. 1.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 20 and 21 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-9, 13-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056).

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With respect to claims 1, 3 and 13, Suygiyama et al. teach (col. 3 lines 21-63) a method of making a wall of a liquid crystal cell comprising a step of imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation (natural light) of ultraviolet from an oblique direction, wherein the said property further includes imparting a preferred tilt as well as a preferred azimuthal alignment to such liquid crystal molecules.

With respect to claims 5-7 and 15, Suygiyama et al. teach (col. 3 lines 24-29 and lines 34-36) a method of making a wall of a liquid crystal cell, wherein the imparted preferred tilt (pre-tilting angle) in normal direction (homeotropically orienting).

With respect to claims 8-9, Suygiyama et al. teach (col. 3 lines 31-34) a method of making a wall of a liquid crystal cell, wherein the angle of incidence φ of the radiation to the normal to the layer is within the range $5^\circ \leq \varphi < 85^\circ$, which covers range $5^\circ \leq \varphi < 70^\circ$.

With respect to claim 11, Suygiyama et al. teach (Figs. 3A-B) a method of making a wall of a liquid crystal cell, wherein the radiation to which the material is exposed is zone-wise patterned, whereby, in said imparted property, the preferred alignment is zone-wise patterned.

With respect to claims 4 and 14, Suygiyama et al. disclose (Figs. 4A-B) a method of making a wall of a liquid crystal cell, of which at least one wall is in contact with liquid crystal material ML.

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However, Suygiyama et al. fail to disclose a method of making a wall of a liquid crystal cell, wherein between the source of the radiation and the material, there is interposed a microelement array for transmitting light in orthogonal direction.

Koike et al. teach (Fig. 21) a method of making a wall of a liquid crystal cell, wherein between the source of the radiation and the material, there is interposed a microelement array for transmitting light in orthogonal direction.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. disclosed with a microelement array interposes between the source of the radiation and the material for transmitting light in orthogonal direction.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 1 above, and in further view of Gibbons et al. (US5929201A).

Gibbons et al. teach (col. 14 line 34 to col. 35 line 60) a method of imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation or elliptically/circularly polarized radiation from an oblique direction,

wherein said property further includes imparting a preferred tilt as well as a preferred azimuthal alignment to such liquid crystal molecules, the irradiation energy

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(measured normal to the radiation) is 0.001 to 5J/cm², which covers the energy less than 2 J/cm².

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. in view of Koike et al. disclosed with the irradiation energy (measured normal to the radiation) is 0.001 to 5J/cm² for preventing the risk of damage to other materials on the substrates.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 1, in view of Ichimura et al. (US6001277A).

Ichimura et al. teach (col. 41 lines 64-67) a method of making a wall of a liquid crystal cell, wherein a material is cross-linked by the irradiation.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell as Suygiyama et al. in view of Koike et al. disclosed with a material that is cross-linked by the irradiation for improving thermal stability of liquid crystal alignment.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suygiyama et al. (US5912717A) in view of Koike et al. (US5629056) as applied to claim 14, in view of Woo et al. (GB 2319093 admitted in IDS).

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Woo et al. teach (Figs 12a-h) a method of making a wall of a liquid crystal cell comprising imparting a property to a layer of a material on the wall, said property being that liquid crystal molecules placed on the material on the wall in use of the cell adopt a preferred alignment, the method comprising exposing the material to unpolarised radiation (natural light) of ultraviolet from an oblique direction,

wherein a liquid crystal cell is hybrid aligned nematic, which indicates an orientation form wherein the liquid crystalline polymer is nematic-oriented and the angle of director in the liquid crystalline polymer relative to the film upper surface and the angle of director in the liquid crystalline polymer relative to the film lower surface are different from each other. Thus, since the director-film surface angle is different between the vicinity of the upper interface and the vicinity of the lower interface.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a method of making a wall of a liquid crystal cell disclosed by Suygiyama and Koike et al. with a liquid crystal cell is hybrid aligned nematic for high contrast ratio and fast response.

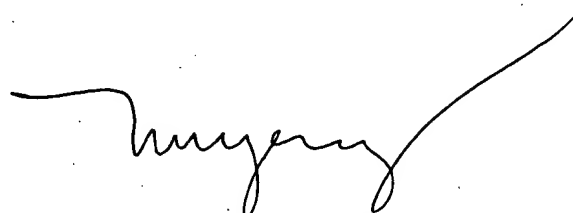
Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie Ngo, whose telephone number is (703) 305-3508.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

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Papers related to this application may be submitted to Art Unit 2871 by facsimile transmission. The Examiner direct fax number is (703) 746-4709. Please call before sending any paper.



Julie Huyen L. Ngo

**Patent Examiner
Art Unit 2871**

February 6, 2002